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09/905,087	07/12/2001	Butrus T. Khuri-Yakub	A-69570/AJT	3514

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05/08/2003

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EXAMINER

DICKENS, CHARLENE

ART UNIT

PAPER NUMBER

2855

DATE MAILED: 05/08/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/905,087

Applicant(s)

KAURI-YAKWB et al.

Examiner

DICKENS

Group Art Unit

2855

— The MAILING DATE of this communication appears on the cover sheet beneath the correspondence address —

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, such period shall, by default, expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

☒ Responsive to communication(s) filed on 2/12/03

☐ This action is FINAL.

☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

## Disposition of Claims

☒ Claim(s) 1-26

is/are pending in the application.

Of the above claim(s) 9-14, 17, 24 & 25

is/are withdrawn from consideration.

☐ Claim(s) 1-8, 15, 16, 18, 19-23 & 26

is/are allowed.

☒ Claim(s) 1-8, 15, 16, 18, 19-23 & 26

is/are rejected.

☐ Claim(s)

is/are objected to.

☐ Claim(s)

are subject to restriction or election requirement

## Application Papers

☐ The proposed drawing correction, filed on \_\_\_\_\_ is ☐ approved ☐ disapproved.

☐ The drawing(s) filed on \_\_\_\_\_ is/are objected to by the Examiner

☐ The specification is objected to by the Examiner.

☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. § 119 (a)-(d)

☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119 (a)-(d).

☐ All ☐ Some\* ☐ None of the:

☐ Certified copies of the priority documents have been received.

☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_

☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a))

\*Certified copies not received: \_\_\_\_\_

## Attachment(s)

☐ Information Disclosure Statement(s), PTO-1449, Paper No(s). \_\_\_\_\_

☐ Interview Summary, PTO-413

☒ Notice of Reference(s) Cited, PTO-892

☐ Notice of Informal Patent Application, PTO-152

☐ Notice of Draftsperson's Patent Drawing Review, PTO-948

☐ Other \_\_\_\_\_

Office Action Summary

1. Applicant's election without traverse of species six in Paper No. 12 is acknowledged. Claims 9-14, 17, 24 and 25 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected species, there being no allowable generic or linking claim. Election was made without traverse in Paper No. 12.

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1, 3, 5/3, 6, 16, 18-22 are rejected under 35 U.S.C. 102(b) as being anticipated by Scholler et al. Scholler et al. teaches:

Claim 1: A fluidic device comprising: at least one microchannel 101, and at least one capacitive micromachined ultrasonic transducer 200 integrated into said microchannel;

Claim 3, 5/3: a base 500, at least one capacitive ultrasonic transducer 200 integrated in said base, and a top having a microgroove 310 sealed to said base with the microgroove over the ultrasonic transducer whereby to form a microchannel with an ultrasonic transducer in one wall of said channel (Fig. 2);

Claims 6, 19: at least two spaced transducers (col. 2, line 62) and said top has its microgroove oriented over both of said transducers;

Claim 16: at least one microchannel 310 having opposed walls, at least one capacitive micromachined ultrasonic transducer 200 integrated into one wall, and a flexible membrane on the opposite wall opposite the ultrasonic transducer whereby ultrasonic waves from the ultrasonic transducer are reflected back to the transducer by the flexible membrane (col. 5, lines 54-64);

Claim 18: a silicon base 500, one capacitive micromachined ultrasonic transducer 200 integrated into said base, and a top 100 having a microgroove 101 sealed to said base with the microgroove over said capacitive micromachined ultrasonic transducer;

Claims 20, 21: a processor 600 for operating said transducers in a pulse echo mode and for operating said transducers to receive ultrasonic pulses from one another.

Claim 22: said microgroove includes a compliant membrane opposite said ultrasonic transducer (Fig. 2).

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the

prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 2, 4, 5/4, 7, 8, & 15 are rejected under 35 U.S.C.

103(a) as being unpatentable over Scholler et al. Claims 2 & 4 differ with the recitations of a fluidic device in which the microchannel has dimensions in the range 1  $\mu\text{m}$  to 500  $\mu\text{m}$ . The dimensions serve the purpose of optimizes the functions of the transducer. Scholler et al. does not provide any dimensions. However, where the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experiment. In re Swain et al., 33 CCPA (Patents) 1250, 156 F.2d 239, 70 USPQ 412; Minnesota Mining and Mfg. Co. v. Coe, 69 App. D.C. 217, 99 F.2d 986, 38 USPQ 213; Allen et al. v. Coe, 77 App. D.C. 324, 135 F.2d 11, 57 USPQ 136. In the instant case Scholler et al. discloses the identical claimed apparatus and would thus experience optimization of the functions of the transducer. Accordingly, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have performed routine experimentation to arrive with the microchannel has dimensions in the range 1  $\mu\text{m}$  to 500  $\mu\text{m}$  in Scholler et al. for the purpose of optimizing the functions of the transducer.

Claim 5/4: the modified Scholler et al. discloses capacitive micromachined ultrasonic transducer 200.

Claim 7: the modified Scholler et al. discloses the base 500 is semiconductor material and the ultrasonic transducer is micromachined in said material (Fig. 2).

Claim 15: the modified Scholler et al. discloses in which the base 500 is silicon or a dielectric material (col. 5, lines 59-62).

Claim 8: the modified Scholler et al. discloses said microgroove includes a compliant membrane (Fig. 2) which is disposed opposite said ultrasonic transducer 200.

6. Claims 23 and 26/5/3 are rejected under 35 U.S.C. 103(a) as being unpatentable over Scholler et al. in view of Hawkins.


Claims 23 & 26 differ from Scholler et al. with a fluidic device in which a transducer is operated to mix fluids. Hawkins discloses with a fluidic device in which a transducer (40, 42) is operated to mix fluids (col. 4, lines 40-52 & col. 4, lines 66, 66 - col. 5. lines 1-5) in a channel 30 for the of purpose having the capability of mixing two of more fluid components in a controlled manner (col. 2, lines 21, 22). It would have been obvious to one having ordinary skill in the art at the time the invention was made to have a fluidic device in which a transducer is operated to mix fluids in Scholler et al. as taught by Hawkins for the purpose of having the capability of mixing two of more fluid components in a controlled manner (col. 2, lines 21, 22).


7. Claims 26/5/4 are rejected under 35 U.S.C. 103(a) as being unpatentable over the modified Scholler et al., as applied to claims 5/4, in further view of Hawkins. Claim 26/5/4 differs from the modified Scholler et al. with a fluidic device in which a transducer is operated to mix fluids. Hawkins discloses with a fluidic device in which a transducer (40, 42) is operated to mix fluids (col. 4, lines 40-52 & col. 4, lines 66, 66 - col. 5, lines 1-5) in a channel 30 for the purpose of having the capability of mixing two or more fluid components in a controlled manner (col. 2, lines 21, 22). It would have been obvious to one having ordinary skill in the art at the time the invention was made to have a fluidic device in which a transducer is operated to mix fluids in the modified Scholler et al. as taught by Hawkins for the purpose of having the capability of mixing two or more fluid components in a controlled manner (col. 2, lines 21, 22).

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8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Examiner Dickens or the supervisor, Edward Lefkowitz, whose telephone numbers are (703) 305-7047 or 305-4816, respectively.

  
cd/dickens  
May 4, 2003

  
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